Washingtonville Bridge
Spanning the Chillisquaque Creek on
Pennsylvania Legislative Route 47036
Washingtonville Vicinity
Derry Township
Montour County
Pennsylvania

HAER No. PA-98

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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HAER No. PA-98

Location: Spanning the Chillisquaque Creek on Pennsylvania Legislative Route 47036, approximately 1/2 mile north of Washingtonville, in Derry Township, Montour County, Pennsylvania

UTM: 18.358960.4546100
Quad: Washingtonville

Date of Construction: 1887

Present Owner: Commonwealth of Pennsylvania
Department of Transportation
Transportation & Safety Building
Commonwealth and Forester Avenues
Harrisburg, Pennsylvania

Present Use: Vehicular bridge

Significance: The Washingtonville Bridge is a small span Pratt pony truss, fabricated by the Phoenix Bridge Company for the New York firm of Dean & Westbrook. It is a typical example, although a rare survivor, of a standardized Phoenix Bridge Company low truss roadway bridge. The bridge is one of 144 Pennsylvania highway bridges nominated to the National Register of Historic Places.

Project Information: This documentation was undertaken in February 1986 in accordance with the Memorandum of Agreement with the Pennsylvania Department of Transportation as a mitigation measure prior to the removal of the bridge.

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The Washingtonville Bridge is a single lane Pratt pony truss spanning seventy-three feet across the Chillisquaque Creek in Montour County. This small bridge, built by Dean & Westbrook in 1887, was erected on stone masonry abutments with prefabricated members made by the Phoenix Bridge Company. The most significant structural feature of this pin-connected Pratt truss is the use of Phoenix columns for the upper chords and the end posts. The bottom chords are double eyebars, the verticals consist of angles with lacing, and the diagonals are rectilinear bars and cylindrical rods. The vertical posts are laterally braced with riveted plates and, when viewed transversely, have an "A" configuration. The deck loads are carried by a floor beam, stringer system with lateral bracing of crossed rods.

The Pratt pony truss at Washingtonville was built in 1887 to replace a county bridge which was inspected and found unsafe. The bridge which was to be replaced was a wooden bridge, known locally as the De Long Bridge. When the De Long Bridge was discovered to be in need of rebuilding, the Montour County Commissioners entered into a contract with Dean & Westbrook of New York City to build a replacement bridge, at an estimated cost of $1,130.

A bridge plate is located on the upper chord of the north truss, identifying Dean & Westbrook as the bridge's builder, and 1887 as the date of construction. The company, Dean & Westbrook, was a partnership doing business as bridge engineers and contractors. An 1886 New York Stock Exchange publication claimed that Dean & Westbrook had built some of the "finest and most substantial bridge structures on the Continent, notably those on the line of the Canadian Pacific Railroad|" In the East, they built many other railroad and highway bridges. The partners, C. W. Dean and John A. Westbrook, started their practice about 1870 and were located for a time in Cleveland, Ohio. In 1833, they moved their main office to New York. By 1886 their offices were located at 32 Liberty Street in New York City, and they were building bridges extensively in the Mid-Atlantic States. Many of the small span bridges they built were subcontracted for complete fabrication to the Phoenix Bridge Company. During the years from 1885 to 1893, Dean & Westbrook ordered 279 bridges from the Phoenix Bridge Company. These bridges were ordered for jobs primarily located in New York, New Jersey, and Pennsylvania; a few contracts were for bridges n Maryland, Rhode Island, Connecticut, and New Hampshire. Seventy-eight of the 279 Phoenix bridges were located in Pennsylvania, in counties throughout the Commonwealth.

The Phoenix Bridge Company was a nationally prominent company, both in the production of rolled structural shapes and in bridge building. In 1878, Phoenix was the largest producer of structural shapes in the United States. The company was purchased and established as Reeves and Whitaker in 1827; it became Phoenix Iron Company in 1856. The bridge works at Phoenixville was a wholly-owned subsidiary of Phoenix Iron Company, fabricating and erecting iron bridges since 1855. It went through various name changes; from 1855 to 1868,

it was Clark, Bonzano & Company; from 1868 to 1871, it was Kellogg, Clarke & Company; from 1871 to 1884, it was Clarke, Reeves & Company; and in 1884, Clarke, Reeves & Company was dissolved and the Phoenix Bridge Company was incorporated under the laws and statutes of the Commonwealth of Pennsylvania.

The Washingtonville pony truss was the ninety-second bridge ordered by Dean & Westbrook from Phoenix Bridge Company, whose records designated this bridge as a pony truss with B' columns, and floor beams above the bottom chord. The columns fabricated for the Washingtonville Bridge consist of four sections, riveted at the flanges, with a diameter of 4-13/16 inches, corresponding to the B' column illustrated in Phoenix Bridge Company's structural section handbook.

The Phoenix column is an easily recognizable structural member, patented by the officers of the Phoenix Bridge Company. It is a wrought iron column fabricated of flanged segmental sections which were riveted together at the flanges to form a tube. When the Phoenix Iron Company introduced its Phoenix column in the 1860s, it was instrumental in shifting bridge building materials from cast iron to wrought iron, according to J.A.L. Waddell in his 1916 text, Bridge Engineering. Samuel Reeves, Vice President of Phoenix Iron Company, patented a wrought iron column in 1862. It was a composite column made up of three or more rolled flanged sections, longitudinally oriented and bolted or riveted together to form a cylindrical compression member. Several changes were patented in 1872 by Thomas Clarke and Adolphus Bonzano, officers of Clarke, Reeves & Company, the predecessor to Phoenix Bridge Company. The standard column used in their bridges was illustrated in company catalogs and handbooks of structural shapes. The diameter and number of sections varied. Phoenix columns were tubes made from four, six or eight sections, rolled and riveted at their flanges. These columns were standardized and numbered alphabetically in their structural shapes handbooks. Phoenix also advertised the fact that its columns could be joined together with cast iron joint blocks, if necessary.

The use of Phoenix columns in the nineteenth century was widespread and not restricted to bridges; Phoenix columns were used as the structural framework for many buildings. Phoenix Bridge Company's components could be ordered by bridge engineers or the entire bridge could be ordered. As early as 1871, Clarke, Reeves & Company issued an Album of Designs, showing various styles of iron railway and roadway bridges which could be ordered from them. These variations were numbered alphabetically, A through L. Design "L", illustrated in that catalog, was a Pratt pony truss like the Washingtonville truss, with Phoenix column upper chords and inclined end posts; in section, the bridge was shown to have braced vertical members. In the catalog, prospective bridge buyers were asked to submit site information, along with the letter and figure number of the desired style. Special plans could be made to suit any requirement, but for economy the catalog stressed "selecting one of our regular styles of bridges."

Thus, Phoenix provided the means for the fabrication of the Washingtonville Bridge. The component parts were ordered on November 4, 1887, for delivery by December 15, 1887. Charging 5.25 cents per pound, the total cost came to $608.53. The bridge members were shipped to Washingtonville on December 15, 1887. Erection was completed at the site, and the bridge was situated on stone masonry abutments built prior to its arrival. According to county records, the bridge was built by December 21, 1887, when the County Commissioners requested the appointment of an inspection team for the completed project.

The Washingtonville metal truss had replaced a wooden bridge called the "De Long Bridge" in Montour County records. The bridge site is located on the road to the De Long mansion, home of one of Montour County's prominent historical figures. Washingtonville was settled sparsely prior to the nineteenth century. In the early nineteenth century, it became a stopping place for travelers on the mail stage route through the county. By 1838, there were four hotels and four stores in Washingtonville. The settlement was known as Washington at that time. When it received its charter as a borough in 1870, the name was changed to Washingtonville. One of the early settlers in Washington(ville) was Henry De Long. His grandson, Frank Emerson De Long, was a successful inventor (the De Long hook and eye), manufacturer and real estate magnate. His business offices were located in the De Long Building at Thirteenth and Chestnut Streets in Philadelphia. He maintained the family estate in Washingtonville as his country home, developing it by adding acres and buildings to the family holdings. The home exists today, not far from the Washingtonville Bridge.

The Washingtonville Bridge is one of eight pin-connected Pratt pony trusses determined significant as a result of the Pennsylvania historic bridge survey. Results of the survey indicate that these pin-connected Pratt pony trusses, built between 1871 and 1894, were the earliest truss type built for Pennsylvania roadways. This data corresponds to the national trends of the late nineteenth century when the pony truss was a popular type of highway bridge for small bridges carrying light loads, because it was inexpensive and easy to construct. The construction history of the Washingtonville Bridge confirms the ease with which this bridge type was built. The fabrication and erection time for completing it was less than forty-seven days.

The Washingtonville Bridge remains essentially unaltered in its truss configuration. The narrow truss measures 13'-6" from centerline of north truss to centerline of south truss. The pins are intact, measuring 3-1/2" in diameter. Alterations which have occurred to the bridge have been primarily routine maintenance. For example, a 2" x 4" timber deck is now covered with a 2-1/2" asphalt wearing surface. The only substantive alteration affects the abutments; the lower portions of the masonry abutments were reinforced with concrete jackets in 1975.

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